UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,174	12/06/2001	David Naccache	032326-166	9572

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EXAMINER
INGBERG, TODD D

ART UNIT	PAPER NUMBER
2193	

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.	Applicant(s)
Office Action Summary		09/936,174	NACCACHE ET AL.
		Examiner	Art Unit	
		Todd Ingberg	2124	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _10 September 2001_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-26 and 28-31_ is/are pending in the application.

  4a) Of the above claim(s) _27 and 32_ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-5,7-13,15,18-20,24-26 and 28-31_ is/are rejected.

7)☒ Claim(s) _6,14,16,17,21-23_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _10 September 2001_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☒ All b)☐ Some * c)☐ None of:

  1.☒ Certified copies of the priority documents have been received.

  2.☐ Certified copies of the priority documents have been received in Application No. _____.

  3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _9/10/2001_.

4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1 – 26 and 28-31 have been examined.

In a Preliminary Amendment

Claims 1 – 26 and 28-31 were amended.

Claims 27 and 32 were cancelled.

Priority

1.   Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers

have been placed of record in the file.

Information Disclosure Statement

2.   The Information Disclosure Statement (IDS) filed December 6, 2001 has been

considered. The reference in French could not be considered.

Oath/Declaration

3.   Applicant has elected to use an outdated version of 37 CFR 1.56 "(as amended effective

March 16, 1992)". Applicant should use the current form on the USPTO.GOV website when

submitting a new Declaration.

Drawings

4.   New corrected drawings in compliance with 37 CFR 1.121(d) are required in this

application because they are fuzzy and hard to read and will not display properly in a U.S.

Patent. Applicant is advised to employ the services of a competent patent draftsperson outside

the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The

corrected drawings are required in reply to the Office action to avoid abandonment of the

application. The requirement for corrected drawings will not be held in abeyance.

5.   Figure 1 should be designated by a legend such as --Prior Art-- because only that which

is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR

1.121(d) are required in reply to the Office action to avoid abandonment of the application. The

replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR

1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted

by the examiner, the applicant will be notified and informed of any required corrective action in

the next Office action. The objection to the drawings will not be held in abeyance.

Specification

6.   The abstract of the disclosure is objected to because must be on a separate page.

Correction is required. See MPEP § 608.01(b).

7.   Preliminary amendment of September 10, 2001 has been entered.

8.   The disclosure is objected to because of the following informalities: The spelling of

several words is not in the format for United States English, the European spelling of the

following must be changed.

European Spelling	United States English Spelling
"analysing"	analyzing
"analysed"	analyzed
"reinitialised"	reinitialized
"reinitialisation"	reinitialization

Correction will benefit the searching of U.S. Patent literature.

Appropriate correction is required.

9.   Page 5 of the Specification contains the acronym "FIBs", without the term being fully

spelt out. On common meaning is "Secured hash standard, Federal Information Processing

Standards Publication (FIBS) 180-1, May 1994". Clarification required with a change to the

Specification.

10.   The use of the trademark "JAVA" has been noted in this application. It should be

capitalized wherever it appears and be accompanied by the generic terminology.

        Although the use of trademarks is permissible in patent applications, the proprietary

nature of the marks should be respected and every effort made to prevent their use in any manner

which might adversely affect their validity as trademarks.

11.   The title of the invention is not descriptive. A new title is required that is clearly

indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

12.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

13.   Claims 8 – 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention. The problem is the Applicant states the program to be monitored (DATA) . The

focus of the claim language should the functionality of the monitor program and how it handles

the varies condition presented by the input as it is processed. The Specification clearly supports

what the Applicant is attempting to claim. This claim as written is indefinite. Dependent claims

are also rejected merely because they are dependent on claim 8.

Claim 8
A method according to Claim 1 wherein, when the program to be monitored provides for at least one jump, the monitoring method is applied separately to sets of instructions in the program which do not include jumps between two successive instructions.

Claim Rejections - 35 USC § 102

14.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15.   Claims 1 –5, 7-13, 15, 18-20, 24-26, 28, 30 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN # 4,266,272 Berglund et al (**IDS**).

The environment of the invention JAVACARD is not claimed but is vastly different than the environment of the IDS reference

Claim Interpretation

The ***control circuitry*** in the reference IDS is performing the ***monitor*** function of the claimed invention.

Claim 1
IDS anticipates a method for monitoring progress with the execution of a linear sequence of instructions in a computer program (**IDS**, Abstract, control circuitry), comprising the steps of analysing the sequence of instructions transmitted to a processor intended to execute the program being monitored by extracting a data item from each instruction transmitted to the processor (**IDS**, Abstract, check word) and performing a calculation on said data item (**IDS**, Abstract, dynamically calculated), and verifying, the result of this analysis by comparing the result of said calculation to reference data (**IDS**, Abstract, local storage register vs. ALU), recorded with said program, wherein the reference data comprises a value pre-established so as to correspond to the result of the analysis produced during the monitoring method only if all the instructions in the sequence of instructions have actually been analysed during the running of the program (**IDS**, Abstract, control storage).
Claim Interpretation
The limitation "of a linear sequence of instructions" is not given patentable weight because it is dependent on the form of the input. Not part of the invention. It is treated as data.

Claim 2
A method according to Claim 1, wherein the verification of the result of the analysis is caused by an instruction placed at a predetermined location in the program to be monitored (as per claim 1 a register is a predetermined location), said instruction containing the reference data relating to a set of instructions whose correct execution is to be monitored (registers are inherently related to the instruction being processed).

Claim 3
A method according to Claim 1 wherein, when the instructions of the set of instructions to be monitored are in the form of a value, said analysis of the instructions is carried out by using these instructions as a numerical value. (Interpretation – all values are in binary format – this is inherent).

Claim 4
A method according to Claim 1, comprising the steps of:
- during the preparation of the program to be monitored (as per claim 1):
- incorporating, in at least one predetermined location in a sequence of instructions (as per claim 1) in the program, a reference value established according to a predetermined rule applied to identifiable data in each instruction to be monitored (as per claim 1, identification of words), and during the execution of the program to be monitored (as per claim 1):
- obtaining said identifiable data in each instruction received for execution (IDS, fetch col 9, 10-30),
- applying said predetermined rule to said identifiable data thus obtained in order to establish a verification value (as per claim 1), and
- verifying that this verification value actually corresponds to the reference value recorded with the program (as per claim 1).

Claim 5
A method according to Claim 1, further comprising a step of interrupting the flow of the program if the analysis reveals that the program being monitored has not been run as expected. **(IDS, Figure #4, Result ERROR from result branch).**

Claim 7
A method according to Claim 1 wherein the set of instructions to be monitored does not include jumps in its expected flow.
Claim Interpretation
The limitation "set of instructions to be monitored does not include jumps in its expected flow" is not given patentable weight because it is dependent on the form of the input. Not part of the invention. It is treated as data.

Claim 8
A method according to Claim 1 wherein, when the program to be monitored provides for at least one jump, the monitoring method is applied separately to sets of instructions in the program which do not include jumps between two successive instructions (**IDS**, col 9, lines 10 – 40).

Claim Interpretation

The limitation "program to be monitored provides for at least one jump" is not given patentable weight because it is dependent on the form of the input. Not part of the invention. It is treated as data.

Claim 9

A method according to Claim 8, wherein, when the program to be monitored includes an instruction for a jump dependent on the manipulated data, the monitoring method is implemented separately for a set of instructions which precedes the jump, and for at least one set of instructions which follows said jump. As per claim 8.

Claim 10

A method according to Claim 9, wherein, for a set of instructions providing for a jump, an instruction which controls this jump is integrated in said set of instructions for the purpose of obtaining a verification value for thus set of instructions before executing the jump instruction. as per claim 8.

Claim 11

A method according to Claim 1 wherein the analysis is reinitialised before each new monitoring of a sequence of instructions to be monitored. (**IDS,** cycle and incrementer, col 3, lines 40 – 60)

Claim 12

A method according to Claim 11, wherein the reinitialisation of the analysis of each new monitoring includes the step of erasing or replacing a verification value obtained during a previous analysis. As per claim 11 depending on cycle determination.

Claim 13

A method according to Claim 11 wherein the reinitialisation of the monitoring analysis is controlled by the software itself. (Interpretation – the control circuitry and software being executed has a functional relationship – This is deemed inherent and related to Examiner's note above)

Claim 15

A method according to Claim 1 wherein the analysis includes the step of calculating, for each instruction under consideration following a previous instruction, the result of an operation on both a value obtained of the instruction in question and the result obtained by the same operation performed on the previous instruction. As per claim 1.

Claim 18

A method according to Claim 1 wherein the analysis includes the step of obtaining a comparison value by calculating successive intermediate values as the data of the respective instructions are obtained. (IDS, Abstract, last sentence words is plural).

Claim 19

A method according to Claim 1 wherein the analysis comprises a step of saving each data item necessary for verification, obtained from instructions in the set of instructions to be monitored as they are executed, and performing a calculation of a verification value from these data only at the necessary time, once all the necessary data have been obtained. (as per claim 1 and details of fetch col 3, lines 10-30).

Claim 20
IDS anticipates a device for monitoring progress with the execution of a series of instructions of a computer program, comprising means for analysing the sequence of instructions transmitted to the processor intended to execute the program being monitored by extracting a data item from each instruction transmitted to the processor and performing a calculation on said data item, and means for verifying the result of this analysis by comparing the result of said calculation to reference data recorded with said program, wherein the reference data comprises a value pre-established so as to correspond to the result of the analysis produced during monitoring only if all the instructions in the sequence of instructions have actually been analysed during the running of the program. As per claim 1.
Claim Interpretation
The limitation "a series of instructions of a computer program" is not given patentable weight because it is dependent on the form of the input. Not part of the invention. It is treated as data.

Claim 24
A device according to Claim 20 that is integrated into a programmed device containing said program to be monitored. (IDS, Abstract, Control Circuitry).

Claim 25
A device according to Claim 20 that is integrated into a program execution device. (IDS, Abstract, Control Circuitry).

Claim 26
IDS anticipates a program execution device that executes a series of instructions of a computer program, comprising means for analysing the sequence of instructions transmitted for execution by extracting a data item from each instruction and performing a calculation on said data item, and means for verifying the result of this analysis by comparing the result of said calculation to reference data recorded with the program to be monitored, wherein the reference data comprises a value pre-established so as to correspond to the result of the analysis produced during monitoring only if all the instructions in the sequence of instructions have actually been analysed during the running of the program. As per claim 1.
Claim Interpretation
A. The limitation "a series of instructions of a computer program" is not given patentable weight because it is dependent on the form of the input. Not part of the invention. It is treated as data.
B. In a similar fashion. The limitation "correspond to the result of the analysis produced during monitoring only if all the instructions in the sequence of instructions have actually been analysed during the running of the program" can be dependent on the input. If the program is only s few statement which all statements are to execute the claim limitations are input dependent. The

claim limitations outside the fact a monitor function is present have not performed a non required
step to distinguish it from a monitor.

Claim 28
IDS anticipates a programmed device containing a series of recorded instructions and a fixed
memory containing reference data pre-established as a function of data contained in said
instructions for analysis and verification of the sequence of instructions, wherein the reference
data comprises a value pre-established so as to correspond to the result of the analysis produced
during monitoring only if all the instructions in the sequence of instructions have actually been
analyzed during the running of the program. as per claim 1.
Claim Interpretation
A. The limitation "a series of recorded instructions" is not given patentable weight because it is
dependent on the form of the input. Not part of the invention. It is treated as data.

Claim 30
A device according to Claim 28 wherein the reference data are recorded in the form of a
prewired value or <u>values fixed in memory</u>. (**IDS**, Abstract, last sentence).
Claim Interpretation
The presence of the OR in the limitations. the Examiner elects to reject the underlined limitation
above.

Claim 31
A device for programming a programmed device according to Claim 28, comprising means for
entering, in at least one predetermined location in a sequence of instructions in the program, a
reference value calculated according to a preestablished mode from data included in each
instruction in a set of instructions whose execution is to be monitored. As per claim 1.

Claim Rejections - 35 USC § 103

16.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

17.   Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over IDS in view of

USPN # 6,402,028.

Claim 29

IDS teaches a device but IDS does not teach the device is a smart card. according to Claim 28, wherein said device is a smart card. USPN 6,402,028 teaches the production of Smart Cards where the logic is on the card. therefore, it would have been obvious to one of ordinary skill in the art at the time of invention, to combine IDS with 6,402,028 because logic control for Smart cards makes Smart Cards more reliable.

Allowable Subject Matter

18.   Claims 6, 14, 16, 17 and 21 – 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The bold and underlined limitations below indicate limitations not found in the prior art of record.

Claim 6
A method according to Claim 1, further comprising an invalidation step for future use of the device comprising the monitored program if **said analysis reveals a predetermined number of times that the program being monitored has not run in the expected manner**.

Claim 14
A method according to Claim 1 wherein the analysis produces a verification value obtained as the last value **in a series of values which is made to change successively with the analysis of each of the analysed instructions of the set of instructions, thus making it possible to contain an internal state of the running of the monitoring method and to follow its changes**.

Claim 16
A method according to Claim 1 wherein the analysis includes the step **of recursively applying a hash function to values obtained of each monitored instruction**, starting from a last initialisation performed.

Claim 17
A method according to Claim 1 wherein the analysis includes the step of making a verification value change by **performing a redundancy calculation on all the operating codes and the addresses executed since the last initialisation was carried out**.

Claim 21
A device according to Claim 20, further including a register for recording intermediate results in **a calculation in a chain carried out by the analysis means in order to obtain a verification value**.

Claim 22
A device according to Claim 21, further comprising means for recording a predetermined value or resetting the register under the control of an instruction transmitted during the execution of a program to be monitored. (Dependent on claim 21)

Claim 23
A device according to Claim 20, further comprising means for counting the number of unexpected events in the program being monitored, as determined by the analysis means, and **means for invalidating the future use of the program to be monitored if this number reaches a predetermined threshold.**

Conclusion

19.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

US Patent Literature

A. 6,402,028 – Deals with mass production of Smart Cards Column 4 covers JAVACARD

technology.

B. 6,668,325 – Employs an obfuscation technique on a section of code. Environment is

distributed.

C. 5,974,549 – Monitor is implemented via Dynamic Link Library (DLL).

D. 6,546,546 – Appears to be dependent on the extensible operating system disclosed

(PARAMECIUM).

E. 6,092,120 – Focus on class loaders.

F. 6,327,700 – Based on Profile data.

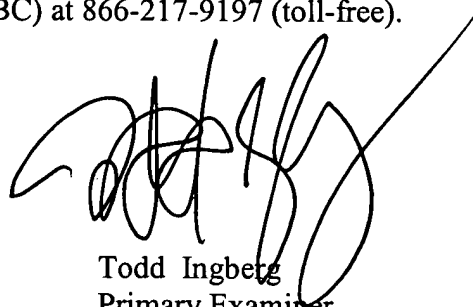G. 6,557,168 – Monitor is included at class level not at low level as per disclosed invention.

H. 6,275,938 – The monitor environment runs at operating system level not processor level as disclosed invention.

Correspondence

20.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Todd Ingberg whose telephone number is (571) 272-3723. The examiner can normally be reached on during the work week..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (571) 272-3719. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Todd Ingberg
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TI